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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/662,507 | 09/14/2000 | Richard L. Smith | SUR-3645 | 2262 |

7590 01/16/2002

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EXAMINER

BARRY, CHESTER T

ART UNIT

PAPER NUMBER

1724

5

DATE MAILED: 01/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------|-------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/662,507 | SMITH, RICHARD L. |
| | Examiner | Art Unit |
| | Chester T. Barry | 1724 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 02 October 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 . | 6) <input type="checkbox"/> Other: _____ |

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Applicant's election of the Group I invention is noted. The argument that no serious search burden exists on the grounds that searching and examination of the process "would also turn up patents or apparatus useful in practicing the process" is noted. The argument is unpersuasive because the "turning up" of **some** such patents or apparatuses would not constitute a reasonably thorough search of **all** apparatuses upon which the Group II invention might read. For example, claim 5 requires a filtration unit whereas none of the claims 1 – 4 directed to Group I requires passage of any fluid through any filtration device of any kind.

The restriction requirement is made FINAL.

Claims 1, 4 are rejected under 35 U.S.C. 102(b) over as being anticipated by Egli.¹ Egli describes growth of HOD autotrophic bacteria isolated from a groundwater treatment plant (page 2819, right column, "Organisms," line 7) on nitrate-containing aqueous media (p 2820 left column line 10) in the presence of hydrogen and carbon dioxide (p 2819 right col. "Growth conditions."

Claims 1, 4 are rejected under 35 U.S.C. 103(a) over applicant's admission as to the contents of a prior art publication.²

Applicant admissions as to the state of the prior art qualify as prior art under §103, not §102. Applicant admits at page 3 that Liessens describes in a 1992

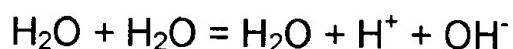
¹ Egli, C., Tschan, T., Scholtz, R., Cook, A. M., & Leisinger, T. Transformation of tetrachloromethane to dichloromethane and carbon dioxide by *Acetobacterium woodii*, *Applied and Environmental Microbiology*, 54, 2819-2824, 1988.

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publication (page 34) that industrial plants that use mixed-culture populations of hydrogen-oxidizing denitrifiers have been operated outside of this country. Accordingly, while such use, or knowledge thereof, is not prior art under 102(b) for want of the record to evidence such a use or knowledge in this country, Applicant's admission of the contents of the 1992 publication (itself not yet of record) is prior art under §103. Should the Liessens article be made of record and found to anticipate the claimed invention, then applicant can expect to have these claims rejected under §102(b) based on the Liessens article.

It would have been obvious to have isolated a mixed-culture of such bacteria from groundwater because applicant admits at page groundwater is a known source of autotrophic HOD bacteria.

Claim 3 is rejected under §112, first paragraph, for failing to teach how to make or use the invention. Importantly, claim 3 is not rejected for want of the claim to particularly point out and distinctly claim the invention. It clearly sets forth that the hydrogen present along with the bacteria recited in claim 1 is produced by "hydrolysis of water." The skilled artisan would understand that hydrolysis of water would cover the following reaction:



Grant & Hackh's Chemical Dictionary, 5th ed., McGraw-Hill Book Co., definition of "hydrolysis," at p. 293, states hydrolysis is "[a] decomposition reaction caused by water,

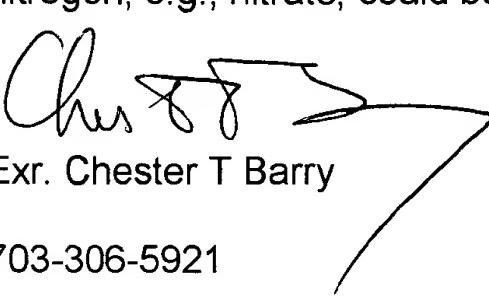
² For a discussion of the availability of applicant admissions as §103 – but not §102 - prior art, see In re

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AB + H₂O = AOH + HB, which, in its ionic form, H₂O = H⁺ + OH⁻, is the reverse reaction of neutralization." Electrolysis, on the other hand, is decomposition of a compound, such as water, by the application of an electric current – not by the application of water. While production of hydrogen by **electrolysis** of water is clearly enabled, **hydrolysis of water** is not enabled. The factors set forth in Ex parte Forman were considered in reaching this legal conclusion. Should claim 3 be amended to read, "electr[hydr]olysis," Gros col 6 line 60 would be deemed highly material to the patentability of claim 3 (amended).

Claim 2 is rejected under §102(e) over USP 6238564 to Tanaka. Tanaka describes treatment of wastewater by purple non-sulfur bacteria at col 8 line 49. These bacteria are autotrophic (note col 8 line 50-52) bacteria. Insofar as the bacteria are "purple non-sulfur" phototrophic bacteria, they **appear** to be hydrogen oxidizing denitrifier bacteria.

Morinaga is cited for Example 1 and the suggestion that any known source of nitrogen, e.g., nitrate, could be used in place of the ammonium sulfate of col 4 line 36.


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703-306-5921

GAU 1724

Nomiya